
Mapping of YANG to DSDL

draft-ietf-netmod-dsdl-map-05

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Main changes between -04 and -05

- ① Derived types "date-and-time" and "uri" SHOULD be mapped to XSD "dateTime" and "anyURI" types, respectively.
- ② Leafs that obtain their default value from a typedef MUST be annotated with `@nma:implicit`.
- ③ An extra `<rng:group>` is no more required for the default case of a choice in the shorthand notation.
- ④ Editorial changes:
 - Markers CODE BEGINS/ENDS changed to the form agreed by the WG.
 - draft-ietf-netmod-yang-types-06 moved to normative references.

Status of the draft

NETMOD charter:

In order to leverage existing XML tools for validating NETCONF data in various contexts and also facilitate exchange of data models and schemas with other IETF working groups, the WG will define standard mapping rules from YANG to the DSDL data modeling framework (ISO/IEC 19757) with additional annotations to preserve semantics.

This goal has been achieved, the mapping provides not only the annotated schema (aka conceptual tree schema), but also RELAX NG, DSRL and Schematron schemas that can be used for practical validation of datastore contents or NETCONF PDUs.

The draft is now in WGLC, the text can certainly be improved, please review and comment.

Remaining issues

1. Precise constraints on values of type *identityref*, as reported in Hiroshima.
2. Order of nodes in groupings that are used in both configuration data and RPCs.

Example:

```
grouping foo {  
    leaf a { ... }  
    leaf b { ... }  
}
```

In an RPC:

```
<define name="_yam__foo_rpc">
  <element name="ym:a">
    ...
  </element>
  <element name="ym:b">
    ...
  </element>
</define>
```

Elsewhere:

```
<define name="_yam__foo">
  <interleave>
    <element name="ym:a">
      ...
    </element>
    <element name="ym:b">
      ...
    </element>
  </interleave>
</define>
```

Implementation status

The implementation in **pyang** is essentially complete. The only remaining part is the ability to map multiple YANG modules simultaneously.

For a particular data model and document type (datastore, PDU) the final result consists of three parts:

1. RELAX NG schema, to be used for validating grammatical constraints and datatypes.
2. DSRL schema, which can be used for filling in all missing default values.
3. Schematron schema, to be used for validating semantic constraints.

Canonical implementations of DSRL and Schematron transform the schemas to XSLT, i.e. items 2 and 3 may be performed using any XSLT processor.

Future work beyond the current charter

- Figure out how to derive schemas for `<edit-config>`.

In cooperation with YANG design team:

- Work on a better datatype system. Part 5 of DSDL (Extensible Datatypes) provides a few interesting ideas.
- Define XPath extension functions capturing the semantics of important data types. For example

```
current() <= nmf:ipv4-address('192.168.1.254')
```